EU CODE WEEK

IRELAND

2021 in Review

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Code Week 2021 – A Review

Pam O'Brien & Julie Power
National Ambassadors, Code Week EU

As Code Week 2022 begins, we would like to thank everyone who has signed up to help with Code Week activities, resources, awareness, etc. CodeWeek activities don't have to take place during the official two weeks in October so there will be plenty of time to pin additional activities before the final count takes place on December 31st 😉   We always love to see lots of activities on the Irish map!

In this Special Edition of Exploring EdTech Ireland, we are looking back on last years Code Week 2021, our best year yet with 142 activities taking place throughout the country!

We would like to thank the ambassadors who came before us, Julie Heeney, Mags Amond and Eugene McDonough.   The groundwork they did has made it easy for us to carry on flying the Irish flag.

Julie   Pam
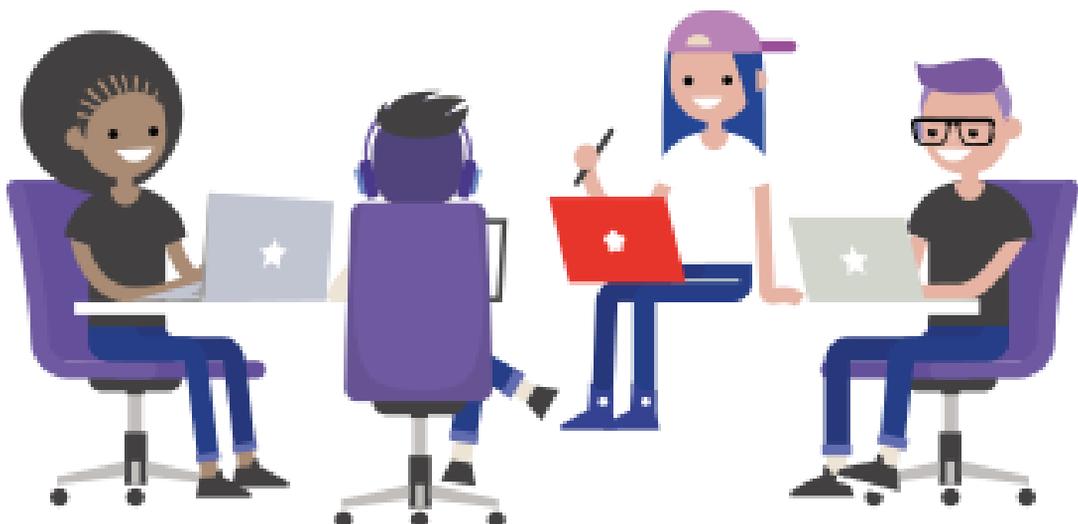
Community

Central Team

The European Commission leads the central EU Code Week team, coordinates the initiative and manages the EU Code Week website. European Schoolnet provides pedagogical support and GOPA.com takes care of communication activities.

Ambassadors

Ambassadors are the main point of contact for Code Week in each country and help spread the vision of Code Week locally. Their role is to:

- connect people, companies and communities interested in supporting EU Code Week.
- encourage organisers to register coding activities on the Code Week map.
- promote the overall participation in EU Code Week.
- review and approve activities in their country.
- work with their peers in other countries and meet regularly to discuss how to further develop the initiative.

There are currently two Code Week ambassadors in Ireland Julie Power and Pam O Brien.

Edu Coordinators

EU Code Week Edu Coordinators are correspondents in Ministries of Education or other educational authorities and organisations participating in EU Code Week. Edu Coordinators strengthen the foundations of the initiative by supporting teachers and schools in the formal education sector.

In Ireland, this coordination is provided by Anthony Kilcoyne, Deputy Director in PDST Technology in Education. A highlight of this coordination work in 2021 was the support of the EU Code Week Online Bootcamp.

Leading Teachers

Leading teachers is an active community of more than 450 educators from across Europe that:

- help connect schools, teachers and students interested in participating to Code Week and encourage them to organise activities and register them on the Code Week map.
- hold professional development webinars in their language and are a reference point for other teachers in the country and in Europe.
- promote the initiative locally.

In 2021 there were just two Leading Teachers pinned to Ireland on the Code Week website, Veronica Ward (primary school teacher in Dublin) and Aengus Byrne (secondary school teacher in Tullamore), joined in 2022 by Trevor McAleenan (Cork) but there are a couple more in the pipeline so watch this space!

https://codeweek.eu/community?country_iso=IE

We hope to recruit additional leading teachers so if you would like to get involved, please check out the role and benefits of becoming a Leading teacher here.

Volunteer

CodeWeek.

You don't need to take on an official role in the EU Code Week community to be part of the movement. Everyone can organise activities to teach and inspire people to code, do robotics, tinker with hardware, 3D-print etc. and pin their activity on the map

We are so grateful of all the volunteers who have helped build our community up to this point and we look forward to many more joining the crew!

Hackathon

In 2021, a series of online hackathons were introduced in 6 European countries to fuel curiosity, inspire creativity and encourage entrepreneurial spirits. The countries included were Greece, Latvia, Italy, Romania, Slovenia and Ireland.

Students at upper secondary school were invited to form teams and use their coding skills to solve a real life local challenge (selected from proposals previously submitted) in just 24 hours.

The aim is to show how concrete solutions come to life with the help of young people's creativity, enthusiasm, fresh ideas and coding skills.

The hackathon had three distinct rounds:

- Round 1 - National hackathon for all participating teams

- Round 2 - National hackathon for the top teams from round 1

- Round 3 - European hackathon for each national winner

Round 1

The first round took place on April 26-27 2021 and the challenge was presented at the start

"How can you create a solution that integrates different active non-profit / voluntary organisations in local communities under one digital hub?

Skills and pitching workshops were provided during the hackathon. After 24 hours of hacking, each team had to pitch their idea to a panel of experts who choose 5 finalists to continue their hackathon journey.

Chain Gang   **Mount Saint Michael, Mayo**
SC-Babbage   **Stratford College, Dublin**
Dream Team   **Mount Saint Michael, Mayo**
Micro Chat   **Coláiste Chiaráin, Limerick**
Eoinies   **Ballinrobe C.S., Mayo**

The 5 winning teams received online training and mentoring during summer 2021 (in order to prepare them for the second and final round) and time to develop their prototype further.

Round 2

Mt St Michael

EU Hackathon Finalists

The second round took place on September 23-24 2021 where teams competed to be the nation's best young hackers.

The participants were presented with a twist to the local challenge i.e. how to make their solution more accessible and again had 24 hours to do so. They were also provided with an accessibility workshop during the hackathon.

The Chain Gang comprising Aoibheann Mangan, Theres Devassy and Anna Farragher were crowned national champions.

Round 3

The third round took place during the official EU Code Week 9-24 October 2021 and each national team had to pitch their solution to a European jury and battle it out for overall glory.

We were so proud of our Irish team, the Chain Gang, on the European stage but the winners on the day were Team Strassium from Slovenia.
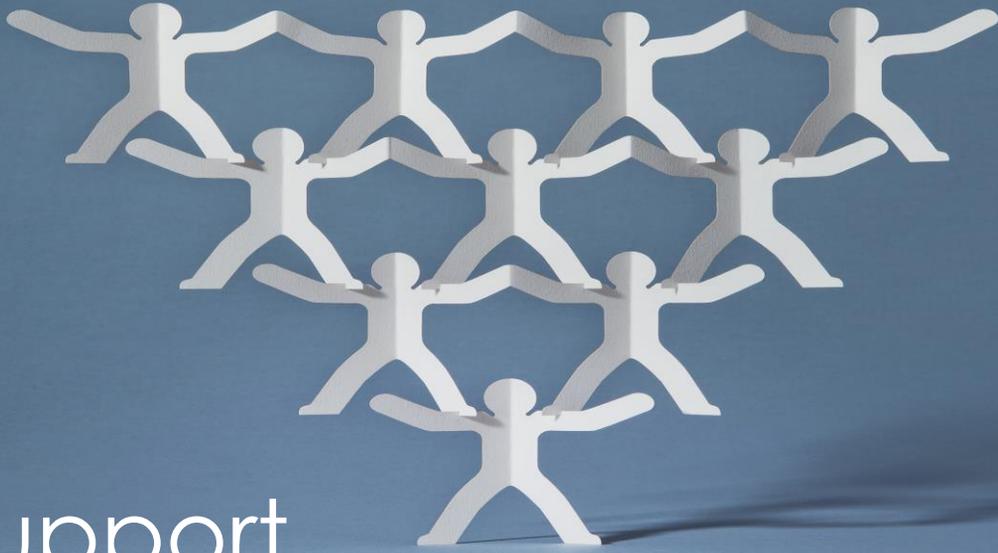
Support

The 2021 Irish hackathons were supported by an amazing group of mentors and jury members from world of business and education, who had the same curiosity and drive as the participants. A special thanks goes to:

- **Matt Hanlon**, The Code Hub

- **Roisin Faherty**, Technological University Dublin

- **Iseult Mangan**, Primary School Principal

- **Amanda Jolliffe**, Microsoft Ireland Dreamspace

- **Triona Reid**, South Dublin County Partnership

- **Anluan Dunne**, Red Hat Ireland

- **Florian Moss**, Red Hat Ireland

- **Murph**, Red Hat Ireland

- **Kevin O'Flannagain**, Engineer

- **Nathan Cahill**, Software Developer and Artist

- **Kieran Collins**, Ludgate Hub

We are also very grateful to the following people who provided workshops for the students during the Irish hackathons.

- James Whelton - CoderDojo co-founder
- Iseult Mangan - Teenturn mentor
- Donal Fitzpatrick - National Disability Authority
- Rob Mc Cullagh, IADT

Chris Reina from Maker Meet was master of ceremonies at both the national hackathons and did a wonderful job keeping everyone entertained and on track!

Feedback

Feedback from students

Unsurprisingly, timing got quite a mention as some students loved the pressure of 24 hours while others wished for more time. Many enjoyed working in teams and meeting new people too. The Discord platform also proved very popular with the students.

Feedback from teachers

One teacher spoke of how roles were defined thereby giving all students a chance to shine. She also liked the timed element to making a product but would much prefer a face-to-face version next time.

Another teacher mentioned the excitement of getting the problem and watching the students work as a team on real world solutions. She also spoke of the personalised support made available during the summer.

And one more teacher found the format of the competition very interesting, complimented our MC on his engagement with the students but is looking forward to a non-Covid version in 2022.

My Experience: Aoibheann Mangan

" *I wanted to take part in the hackathon because I love the idea of being given a challenge and working with others to come up with a solution in a short period of time!*

For the first round of the EU CodeWeek hackathon, my team, Anna, Theres and I, the Chain Gang came up with an app called SyncLink to help link up companies and non-profit organisations.

Our app was designed to allow charities and NGOs to
- *Sign up and create a profile*
- *List resources that others might like to borrow*
- *List events such as fundraisers and training courses*
- *Request volunteers and/or resources*

We then had to pitch our solution to the judging panel. On the day we had some WIFI issues which added to the stress, but we got there in the end. We were delighted to be one of the 5 teams who made it through to the next round which was the national final.

During the summer, we got to develop our apps for the next round. We really enjoyed this part as we were lucky to make contact with 5 groups in our local area who would test the app for us and give us lots of feedback on what worked well as well as what didn't and what was missing!

This was a great experience as we could see just how much an app like this was needed.

On the first day of the national final, we were given an extra challenge to incorporate accessibility into our app. We hadn't expected this extra challenge, but we are forever grateful that it was introduced as we learned about lots of accessibility issues which we now have skills to apply to all future apps we make!

After making our app more accessible, we had to pitch to the judging panel again. We were absolutely delighted to be the national winners. Next up was the European final where we were up against teams from other countries which involved pitching to another panel of judges. Sadly, we did not win but we all still had such a great time!

Over the course of a few months, we got to develop SyncLink and get it tested and working in our local community. We learnt some important team-building and problem-solving skills because everything didn't go as smoothly as we had hoped it would. We had some WIFI issues and sometimes our code didn't work the way we wanted it to! All in all, it was such an enjoyable experience and we had great fun competing in the Hackathon. We would definitely like to take part again!

Looking forward for SyncLink, we would like to work on coding it in Android Studio and launching it as an app for all NGOs and charities to explore. We would like to work on a localisation setting for it before we release it. We have a lot to learn before we can make this happen but we see the app as something that could be a great resource for charities to save money and to enhance the experiences of their volunteers and those who use their services.

A massive thank you to our teacher Ms Stephanie Hogan, our 5 local charities and all the mentors who worked with us during the hackathon.

"

Leading Teacher: Veronica Ward

I was lucky enough to be involved in the pilot EU Code Week Summer School held in Brussels and to also be a moderator on the Deep Dive MOOC. (JP)

In addition to being an EU Code Week leading teacher in Ireland, I am also a teacher of 1st Class in Dublin 7 Educate Together. For many years I have advocated for the use of inquiry based learning within primary classrooms which includes a strong interest in the use of technology to enhance teaching, learning and assessment.

Through participating in EU Code Week 2021, I provided the children within my class with an introduction to coding by completing a variety of plugged and unplugged activities. The use of coding naturally aids the enhancement of the children's 21st century skills. Each of the activities afforded the children with opportunities to enhance their creativity, develop their communication skills, work collaboratively with their classmates as well as improving skills in the area of critical thinking.

At the start of the week my class looked at how computers have their own language. We discussed how the language used by machines to communicate is called binary code. The children learned that binary means there are only two possible values – 0 and 1.

Using a chart showing the binary code representing the different letters of the alphabet, the children wrote their own codes for their friends to decode. One of the codes can be found below:

"Welcome to 1st Class in Dublin 7 Educate Together - 01010111 01100101 01101100 01100011 01101111 01101101 01100101 00100000 01110100 01101111 00100000 00110001 01110011 01110100 00100000 01000011 01101100 01100001 01110011 01110011 00100000 01101001 01101110 00100000 01000100 01110101 01100010 01101100 01101001 01101110 00100000 00110111 00100000 01000101 01100100 01110101 01100011 01100001 01110100 01100101 00100000 01010100 01101111 01100111 01100101 01110100 01101000 01100101 01110010"

While technology is playing an ever increasing role in our daily lives there are so many activities children can partake in to learn the principles of coding that are extremely hands on, playful experiences that do not involve the use of technology. These activities integrate many subject areas of the curriculum around the common theme of coding. In order to help the children think like programmers they created their own Lego mazes. The children solved the maze by creating "code". In this activity the children were identifying the specific problem and moving their Lego character with the aid of specific directional code.

As the children became more prolific with creating their mazes, the challenge was increased by asking the children to write as short a program as possible to solve the maze. At this point the children began to see the importance of creating "loop" and "if" statements. This activity encouraged the children who assumed the role of programmer to consider all possibilities at any given location in the maze and decide on the best sequence of actions.

Binary code is a numerical system used by computers and is composed entirely of zeros and ones. The UTF-8 binary coding system uses a specific binary number for all 26 letters of the alphabet.

Having completed the unplugged activities the children began to use a variety of technology to advance their coding experiences. Building on the skills they had learned in the Lego maze activity they plotted a variety of journeys around the classroom using a Fisher Price Code-a-pillar. This interactive programmable toy encouraged the children to experiment with directions such as forward, left, right and wait, to help the Code-a-pillar navigate around the classroom. This fun activity encouraged the children to select an appropriate sequence of commands to carry out the desired task. The open-endedness of this task encouraged the children to take control of their own learning as they tried to navigate more elaborate routes by connecting the various Code-a-pillar segments.

Code-a-Pillar

The children were now familiar with the vocabulary associated with block coding similar to that used in Scratch. Using the hour of code website https://code.org/dance the children were guided through a series of tasks, supported by instructional videos, where they created block coding to create a "Dance Party" complete with music and dancing characters. This activity was a stepping stone to the children creating their own animations using Scratch https://scratch.mit.edu/

Over the course of the week the children found the different activities extremely enjoyable as they took the steps towards becoming programmers who can design and make their own computer animations and games.

They have developed their problem solving skills in authentic scenarios. Most importantly for young children the activities were visually appealing. This made for a more enjoyable and memorable process. By engaging with the different activities the children developed an array of skills not just in the area of coding but transferable life skills.

EU Code week has been a great launch pad and many of the children have undertaken their own coding projects as a result of their introduction to coding.

I would encourage all teachers to look at ways they can integrate coding into their classes.

Teacher Interview: Niamh Brady

Your role? *Special Class Teacher, St Mark's Special School, Newbridge, Co. Kildare*

How did you participate in EU Code Week 2021? *The students in 2C in St Mark's Special School kicked off Code Week by following simple direction cards & seeing where their Beebots ended up after inputting each series of directions. Then they progressed to the Number Mat, CVC Word Mat, Pet Store Mat & Wooden Maze. Pupils worked in pairs and took it in turns to code their robot to get to a particular place on the mat/board.*

The week before midterm we had a Halloween themed activity where the Beebot Witches were programmed by the students to pick up ingredients listed on their chart in the right order so that they could make the corresponding potion!

Impact of your Code Week 2021 activities on you, your students, school, community etc? *The students had great fun participating in Code Week. They collaborated and communicated so well together, and their debugging skills were really impressive. It was fantastic to see their engagement with the various activities and to observe the level of learning experienced.*

CodeWeek Interview: Eimear Ferguson

Your role? *Education and Public Engagement Manager, VistaMilk SFI Research Centre.*

How did you participate in EU Code Week 2021? *I coordinated an activity for VistaMilk SFI Research Centre called "**Coding wth Cows**" for primary school audiences.*

Impact of your Code Week 2021 activities on you, your students, school, community etc ? *During Code week we visited three schools with a total of 200 students with our activity. There were 6 volunteers involved. Every child completed a pre and post questionnaire. The feedback was very positive. Children were aged between 9 and 12 years of age. Two of the schools were based in an urban environment and one was in a rural environment.*

School Round-ups: Claregalway College

Throughout the 2021 school year, students and teachers across Ireland were busy working on lots of different plugged and unplugged activities. A small sample of the kinds of endeavours undertaken in Ireland during EU Code Week 2021 are highlighted in the following pages.

We would like to thank Iarla Connaughton, Caroline Carey, Trevor McAleenan, Darren Walsh, Bernie O'Driscoll and Fiona Farry for sharing their schools' activities.

Students at Claregalway College Galway, had a fantastic time participating in a range of tasks and coding challenges as part of Code Week 2021. Students worked on drawing art in Pencil Code, making Halloween games in scratch, cracking codes for escape rooms, and completing a range of computational thinking challenges.
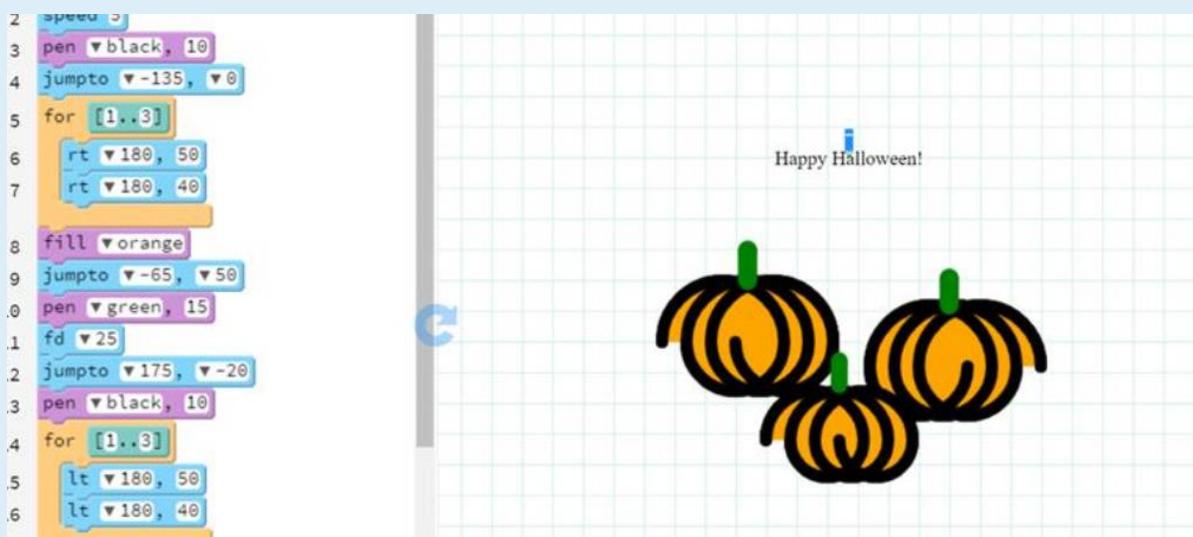
# School Round-up: Presentation Secondary School Kilkenny

During 2021, in Presentation Secondary School Kilkenny, we decided to put a big emphasis on coding and digital literacy for our students. EU Code Week was the perfect opportunity for us to get our students engaged and involved in coding activities. Ms C. Carey, our coding teacher, ran an activity based on programming a **Micro: bit**. The students loved the activity and really enjoyed exploring how the **Micro: bit** works. It allowed them to develop their critical thinking, problem solving and analytical skills in a fun and exciting way

# School Round-up: Goatstown Educate Together Secondary School

For EU Code Week 2021, the 2nd year students from the Artistic Performance and Coding short courses in Goatstown Educate Together Secondary School joined forces! Students from both classes collaborated to work out the tune of the song 'Kids' by MGMT and then coded **micro: bits** into instruments using bananas as buttons. Students then tried to play the tune together! Great fun was had teaching each other about how to code and how to play an instrument - they're not so dissimilar!
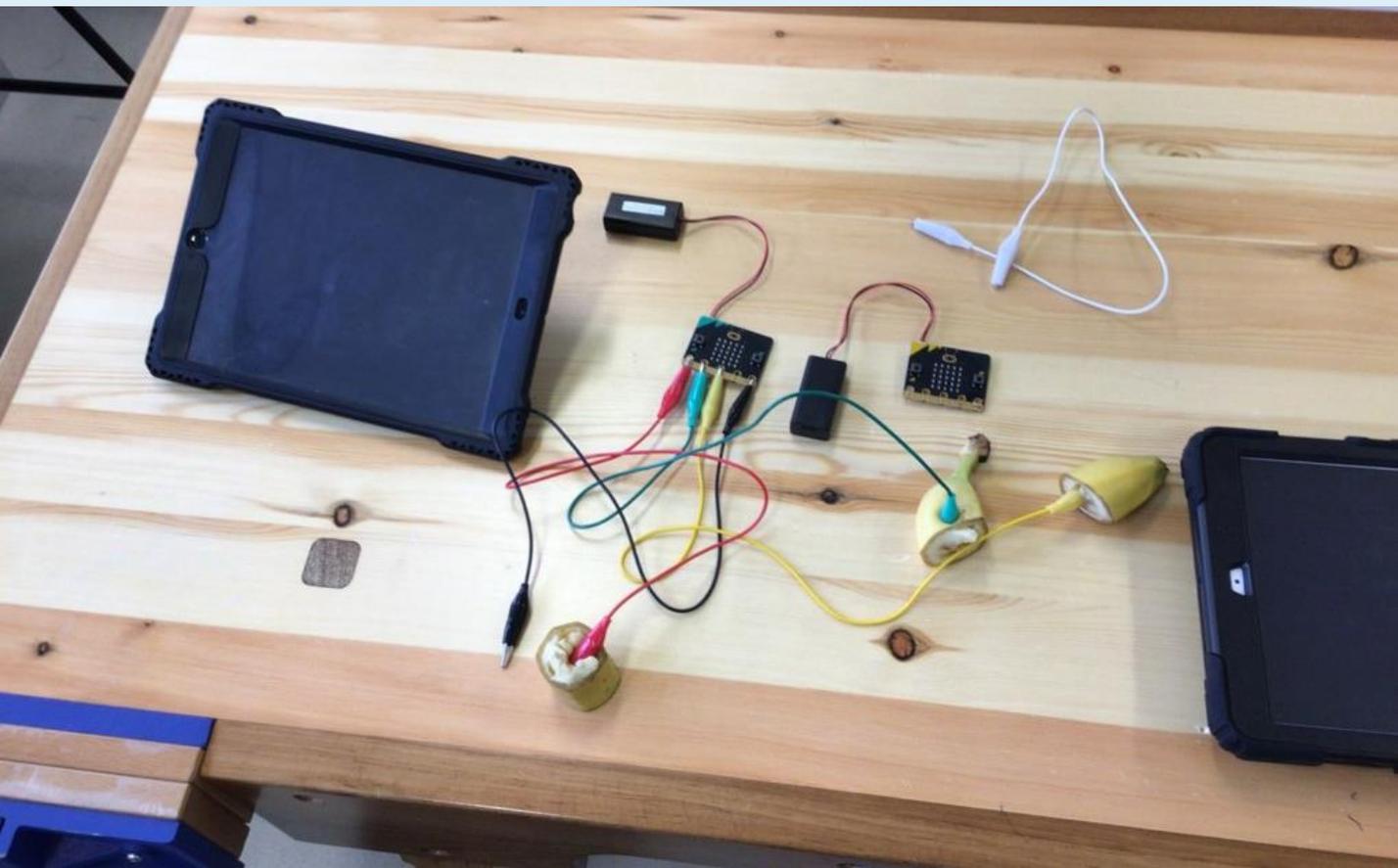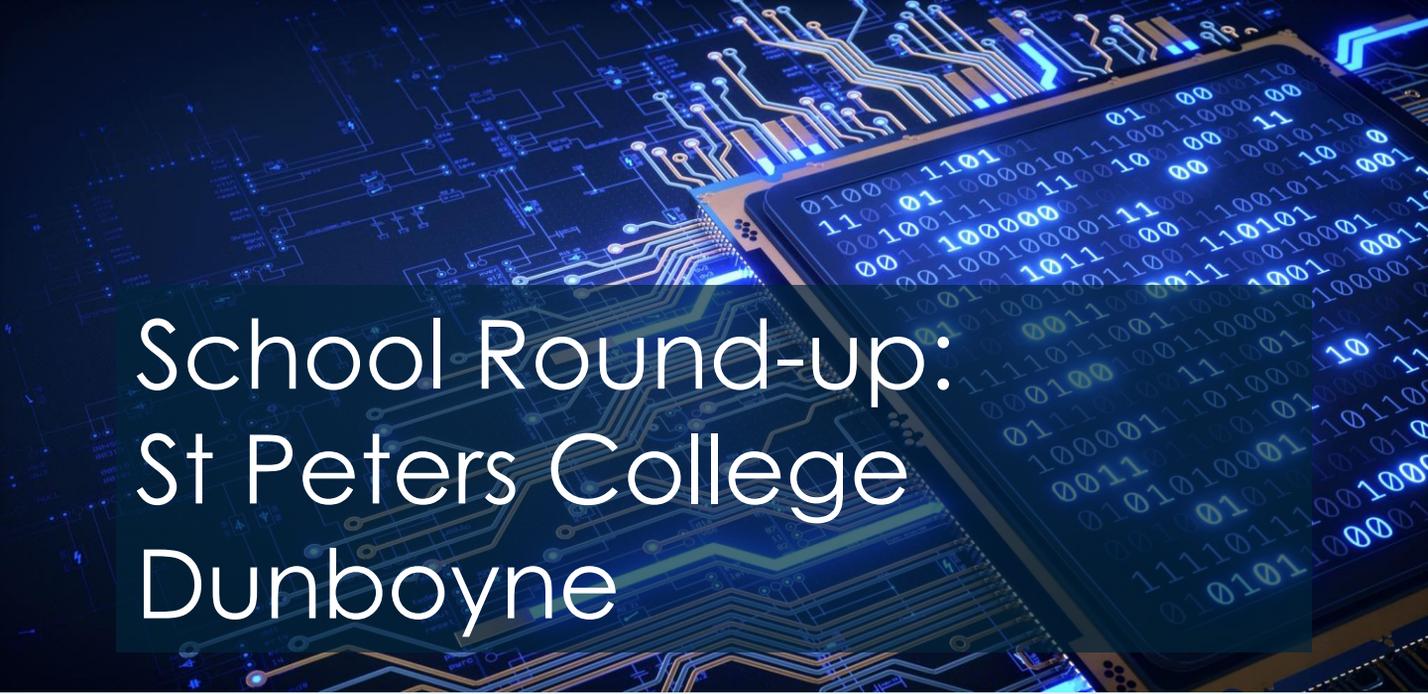
School Round-up: St Peters College Dunboyne

During Code Week 2021, 1st year coding students in St Peters College Dunboyne used Microsoft Excel to learn about pixels and image quality. They started using unplugged resources from **CodeClub** before advancing to create their own pixel art on Microsoft Excel.
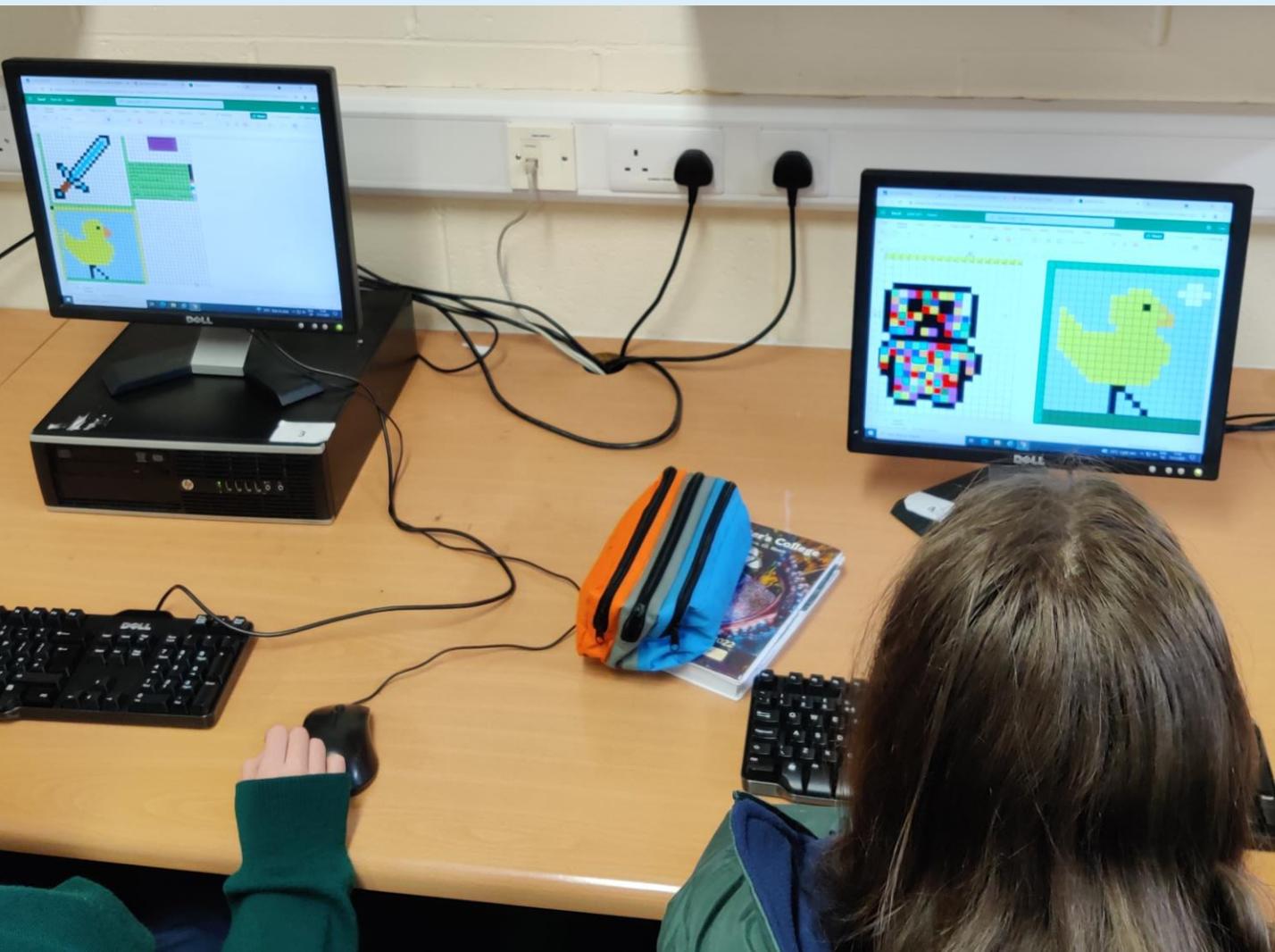
School Round-up: Thomond Community College

For EU Code week 2021 we wanted to incorporate Spanish Week theme of Day of the Dead/ the Night of the Witches into our Coding classes at Thomond Community College, so we tasked students with creating a "scary" Halloween story on Scratch where students were given a basic game "Doom on the Broom" where they learnt about movement, conditional statements, and cloning sprites. They then developed it further with their own individual levels and options for player interaction & responses. The 2nd & 3rd year Coding students involved thoroughly enjoyed the activity and was a fun and engaging activity to promote EU Code Week in our school!
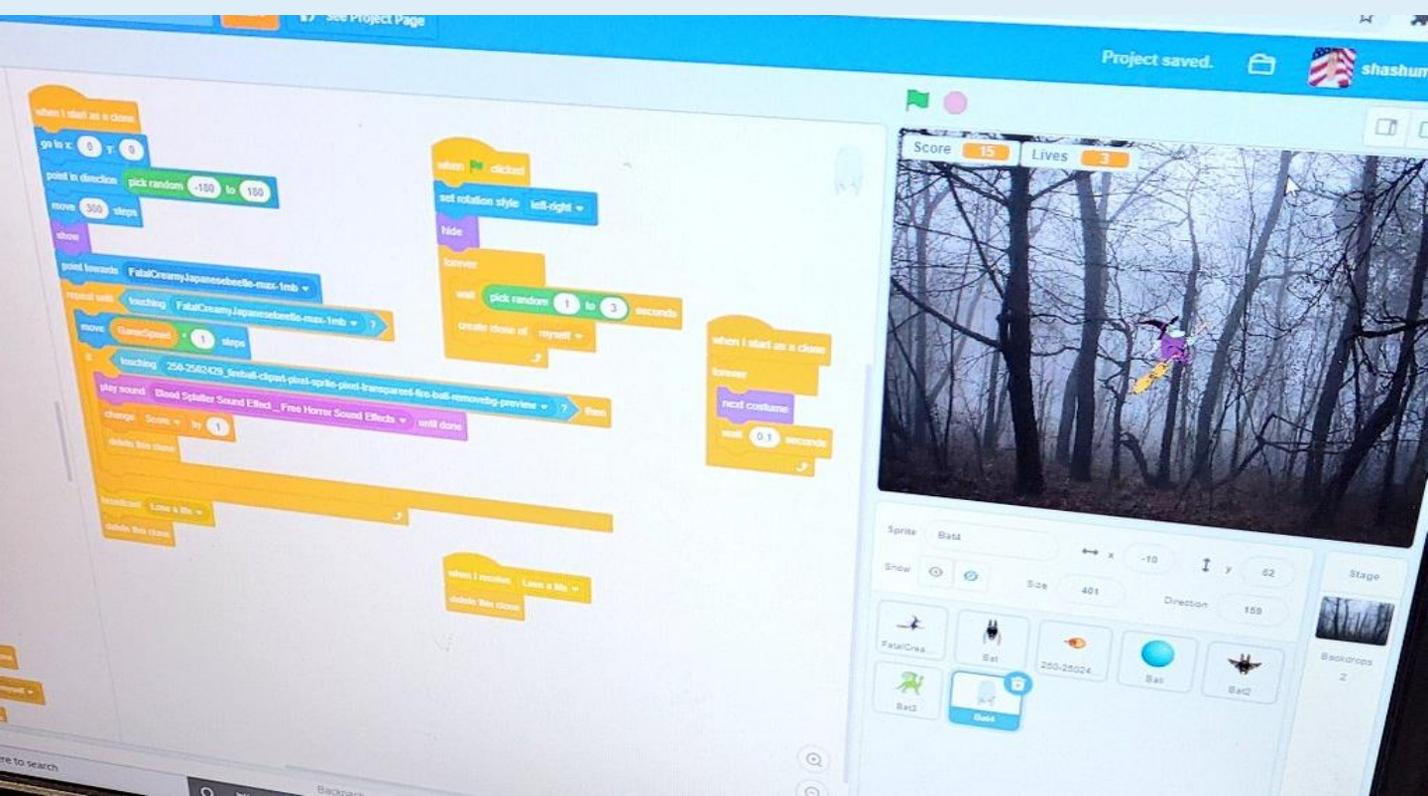
School Round-up: Cloughfin National School

For Code Week 2021, children in the Senior Room of Cloughfin N.S. used the Education Edition of **Minecraft** to participate in the Ireland's Future is Mine competition. They also engaged in a live webinar with Michael from Microsoft Dreamspace where they used Makecode Arcade to create Halloween games.

Code Week in Gaelscoil Bhríde, Durlas Éile

As a pilot school for the NCCA Coding Initiative in 2018, we introduced coding for the first time to our school. Since then, all classes have had experience of coding, both plugged and unplugged activities starting with Beebots in the junior classes, working our way to Scratch Jr. and Scratch and Lego We Do.

Last year we were honoured to be asked to represent Ireland in helping to launch European Week of Code, when some of our sixth-class pupils joined in a remote event to explain about their coding experience in school.

For this year's Code Week all eight classes from Junior Infants to Rang 6 got involved, all receiving lovely certificates from Code Week Ireland to acknowledge their efforts. The four junior classes embarked on a journey with the Beebots which saw them work through various stations, coding and programming the devices to perform various tasks, negotiate mazes, avoid obstacles and answer puzzles. We began with some unplugged activities to help teach the necessary vocabulary and develop an understanding of the basic directional concepts.

All activities were integrated with other subjects. We were spelling, doing maths and exploring the world but one of the firm favourites involved solving clues and coding Beebot to travel around Treasure Island to locate the buried treasure.

The Junior pupils worked in small groups, discussing, predicting, solving and coding.They set each other challenges by creating and designing mazes which the Beebot had to negotiate. This proved quite difficult as the pupils had to predict and programme the device to avoid obstacles en route. There was tremendous celebrations when they succeeded!

Rang 2, as part of their literacy stations were working on Scratch Jr. They worked diligently all week, creating stories in their groups. It took until Day 3 to eventually get Scratch to walk on all 4 sides of the screen with his feet on the edge. By the end of the week, we got to see some impressive creations.

Rang 3 continued to work with Scratch Jr. They created some amazing scary stories for Oíche Shamhna integrating Gaeilge and teicneolaíocht, they produced some fantastic work, which took quite a bit of time and effort to reach perfection!

Our three senior classes worked on a variety of projects using Lego We Do. They started building basic vehicles and coding these to move. They were then set a time trial challenge! The modifications began! Trial and error the name of the game! Who could design the fastest moving vehicle? Negotiations and planning complete, it was time for the event itself!
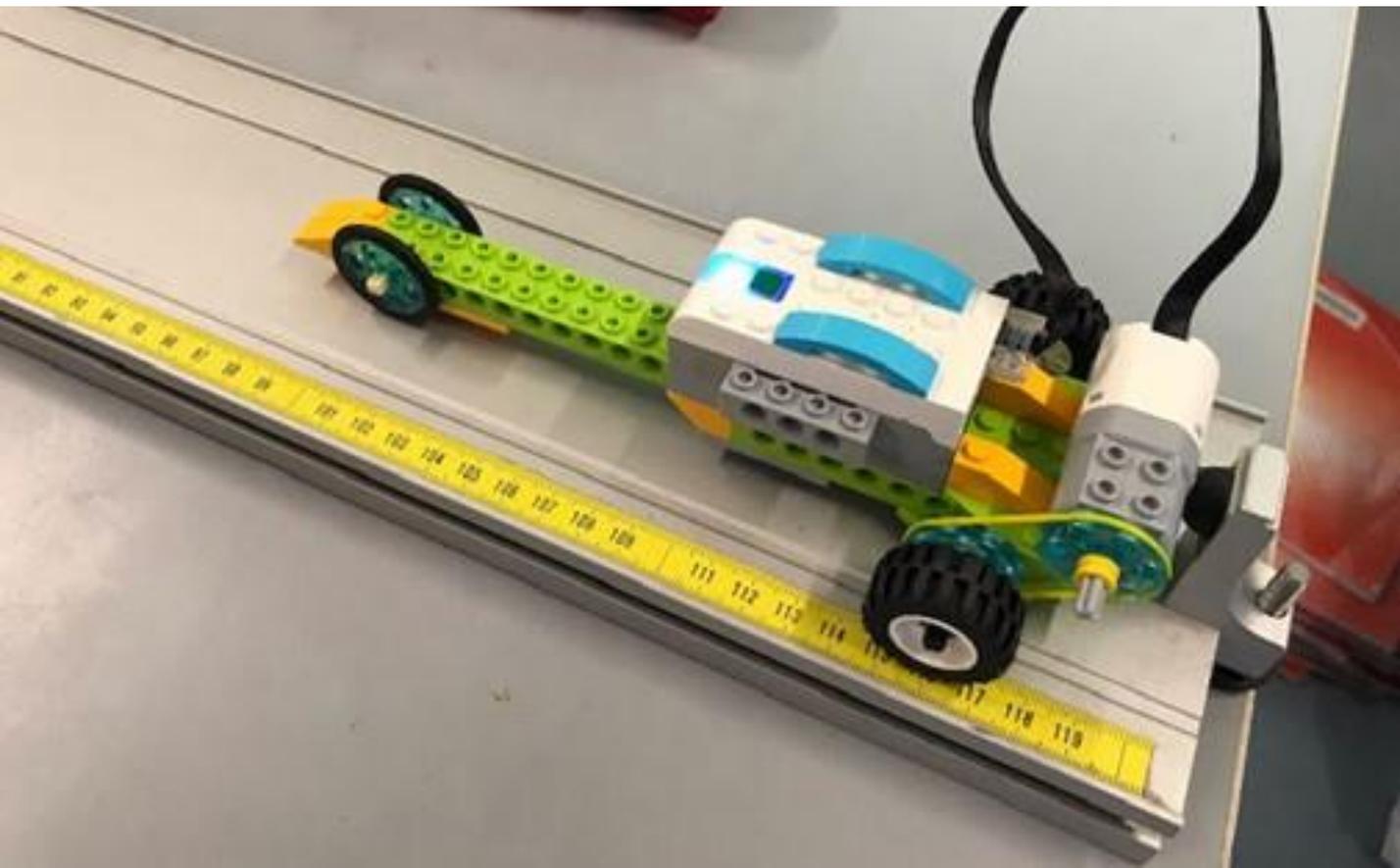
We learnt so much from this activity both in terms of design, but also in relation to the code being used. We used the Pasco Scientific Motion Sensor to measure and analyse the speed the cars reached. We had some very creative designs – but it wasn't all about look! We learnt lots and had so much fun!

WeDo 2.0

LEGO education

new activities in 2021

In addition to the hackathon, a number of other initiatives were introduced in 2021.

Online Bootcamp:

A highlight of the Edu coordination work in 2021 was the support of the EU Code Week Online Bootcamp. A new EU Code Week MOOC that was developed to provide primary and post-primary teachers with practical ideas, tools and resources to help them bring coding and computational thinking into their classroom. Within the MOOC awareness is raised around diversity and inclusion in coding and the potential of artificial intelligence in education is explored.

Over three modules teachers create their own activities and experiment with new learning materials and challenges. Teachers are introduced to the EU Code Week initiative and the opportunities it offers.

In Ireland, seven schools with a minimum of two teachers in each school engaged with the MOOC. Each school was supported by a PDST advisor, from either the PDST Digital Technologies or STEM teams. These advisors met with their school each week and helped teachers to understand and apply their learning to the curriculum.

This collaboration was aligned with a European-wide effort towards a blended approach with the online materials supported with offline conversations.

To further support these teachers and all other teachers PDST technology in Education developed a web page of curated coding and computational thinking resources. The purpose of the webpage was to raise awareness of what courses are available for teachers, where teachers can access coding resources and get involved in coding initiatives, and to provide lots of ideas on how to embed coding and computational thinking into practice. These resources are available at https://www.pdsttechnologyineducation.ie/videos/?school-level&video-category=teaching-learning&teaching-learning=coding&video-language

Weekly resources:

In 2020, we introduced a series of 8 webinars during the official two weeks of CodeWeek covering a variety of topics such as The Big Game Show, autonomous vehicles, design thinking and various coding environments and activities.   For 2021 we felt that many people were all zoomed out, so we decided to share a series of resources in the run up to CodeWeek instead.
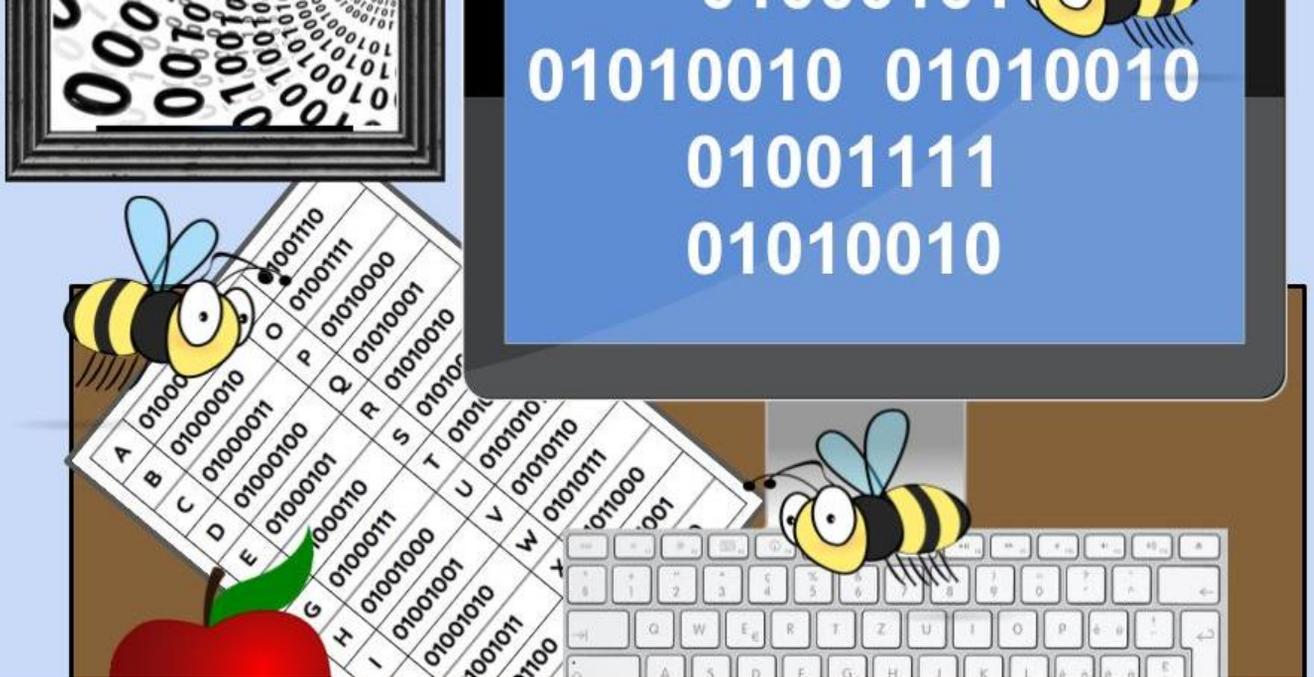
Over a period of 6 weeks, we identified suitable resources from the microbit, Scratch, Hour of Code, Professional Development Service for Teachers and EU Code Week websites to help teachers to identify activities for their classrooms.

In 2021 we also created an online Code Week themed Escape Room challenge for teachers to share with their students. No coding experience was required, just an ability to think outside the box as instructions were very scarce! Students worked in pairs/small groups to crack the codes and they could do so via mobile devices if other devices were unavailable.

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CodeWeek.

CodeWeek 2022 is running from October 8 – 23.

Don't forget to 📌 your breakout activity on the EU Code Week map

Tag us on Twitter/Facebook @CodeWeekIRL and #CodeWeek too!

https://codeweek.eu/

www.exploringedtech.ie